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ABSTRACT

A study examined the feasibility of using the Comprehensive Nursing Achievement Test as a predictor of nursing students' eventual success on the National Council Licensure Examination (NCLEX-RN). The predictive validity of other factors, such as age, college entrance test scores, and grades in second-year nursing courses, was also examined. Seventy-one graduates of the 1986 registered nursing class from Long Beach City College (California) constituted the study sample. Data collected for each person in the sample included their NCLEX-RN score, their Comprehensive Nursing Achievement Test score, their age when they took the comprehensive test, their math and reading college admission scores, and their grade-point average (calculated on the basis of courses taken during the second year of the nursing program). A two-tailed independent T-test was used on the means for both tests. No significant difference between the two means was found. This confirmed the usefulness of the Comprehensive Nursing Achievement Test as a predictor of success on the NCLEX-RN. In addition to the Comprehensive Nursing Achievement Test score, the best indicator of success on the NCLEX-RN was the student's performance in second-year nursing courses. Age and math and reading admission scores did not predict success on the NCLEX-RN. It was therefore recommended that the practice of administering the Comprehensive Nursing Achievement Test be continued and that the test be used for curriculum review. (MN)

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USING THE COMPREHENSIVE NURSING ACHIEVEMENT TEST AS A PREDICTOR OF SUCCESS ON THE NATIONAL COUNCIL LICENSURE EXAMINATION

Learning Theory and Applications Seminar

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A Practicum presented to Nova University in partial fulfillment of the requirements for the degree of Doctor of Education

Nova University

January 1988

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ABSTRACT

USING THE COMPREHENSIVE NURSING ACHIEVEMENT TEST
AS A PREDICTOR OF SUCCESS ON THE NATIONAL
COUNCIL LICENSURE EXAMINATION

Marilyn Balint, R.N., M.S.N.

This purpose of this practicum was to determine whether performance on the National League for Nursing Comprehensive Nursing Achievement Test is a predictor of success on the National Council Licensure Examination (NCLEX-RN) for the graduate of the registered nursing program at Long Beach City College. The research questions addressed were: Is the score on the Comprehensive Nursing Achievement Test predictive of success or failure on the on the NCLEX-RN; and, are there other factors that are predictive of success or failure on the NCLEX-RN such as age, college entrance test scores, or grades on second-year nursing courses?

The sample was composed of seventy-one graduates of the 1986 registered nursing class from Long Beach City College. Data collected for each graduate in the sample included the NCLEX-RN score, Comprehensive Nursing Achievement Test score, age at the time of the Comprehensive Test, math admission score, reading admission score, and grade point average calculated on the grades of nursing classes taken during the second year of the program.

Using the two-tailed independent t-test, the means of the Comprehensive Nursing Achievement test and the NCLEX-RN were examined. No significant difference was found in the two means at the 0.5 level of significance. Therefore, the null hypothesis was accepted.

A multiple regression analysis was also completed using the score on the NCLEX-RN as the dependent variable, and each graduate's score on the Comprehensive Nursing Achievement Test, age, math and reading scores, and GPA on second-year nursing courses as independent variables.

It was concluded that confidence in the Comprehensive Nursing Achievement Test as a predictor of success on the NCLEX-RN was well founded. In addition to the Comprehensive Nursing Achievement test, the best indicator of success on the NCLEX-RN was the student's performance in second-year nursing courses. Age, math admission scores and reading admission scores did not predict success on the NCLEX-RN.

It was recommended that the practice of giving the Comprehensive Nursing Achievement Test be continued. The results of the Comprehensive Nursing Achievement Test should be utilized by the faculty to council students in pre-examination review strategies for the NCLEX-RN. The Comprehensive Test should be used for curriculum review. The study should be replicated with a larger sample in another setting.

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Chapter 1

INTRODUCTION

Underlying Problem

During the second year of the registered nursing program at Long Beach City College, the students are strongly advised to take a series of tests prepared by the National League for Nursing (NLN). The test series includes individual tests on obstetrics, pediatrics, medical and surgical nursing, psychiatric nursing and nutrition as well as a comprehensive examination covering the content of the nursing curriculum. The tests in general, and specifically the Comprehensive Nursing Achievement Test, are purported to be predictive of success on the National Council Licensure Examination for Registered Nurses (NCLEX-RN) (NLN Test Service Catalog, 1987; Shelley and others, 1976; Quick and others, 1985).

The Comprehensive Nursing Achievement Test is administered to students nearing the end of their instructional program. Test results and interpretative data are sent to each student completing the test by the National League for Nursing. No attempt has been made at Long Beach City College to utilize these data to assist a greater number of students toward success on the National

Council Licensure Examination or to increase the scores of those who are successful.

Miller and Meier (1974) identified two important predictor variables for success on state board examinations. These predictor variables are test anxiety and student grade expectation. If it can be proven that the Comprehensive Nursing Achievement Test is a predictor for success for Long Beach City College nursing students on state boards, a high score on that test could be used in counseling students to lower their anxiety and increase their grade expectation on the NCLEX-RN. A low score on the Comprehensive Nursing Achievement Test could prove to be an early indicator of potential failure on state boards and this information could be used to counsel the student to take steps to improve the chance of success.

Purpose of the Investigation

The purpose of this investigation was to determine whether performance on the National League for Nursing Comprehensive Nursing Achievement Test is a predictor for success or failure on the National Council Licensure Examination for the graduate of the registered nursing program at Long Beach City College.

Independent and Dependent Variable

The independent variable, the variable causing a change in the observed results, was the achievement of the students on the Comprehensive Nursing Achievement Test. The dependent variable, the measurable response, was the academic achievement of the students as identified by the scores they earned on the National Council Licensure Examination for Registered Nurses.

Research Hypothesis

It was hypothesized that success on the Comprehensive Nursing Achievement Test would predict success on the National Council Licensure Examination for Registered Nurses.

This was an ex-post facto, quasi-experimental study conducted at Long Beach City College. The Comprehensive Nursing Achievement test scores of seventy-one graduates of the class of 1986 were compared with their scores on the NCLEX-RN to determine if the former was a predictor for success on the latter. Additional data, including age, math and reading college admission test scores and grade point average calculated on nursing classes taken during the second year of the registered nursing program were also examined.

Chapter 2

BACKGROUND AND SIGNIFICANCE

Background

The nursing program at Long Beach City College is measured, in part, by the success of the graduates on the National Council Licensure Examination for Registered Nurses, the test required by law to practice registered nursing. Long Beach City College has a reputation for preparing students who are successful in passing the NCLEX-RN on their first attempt. Statistics are on file in the office of the Program Director for the registered nursing program at Long Beach City College to support this claim. While it has never been the intent of the faculty to teach to the NCLEX-RN, "success on this exam is the final determinant of legal nursing practice (Woodham and Taube, 1986:116)," and the administration and faculty have always carefully monitored the results.

Yocom and Scherubel (1985:244) concur with the importance of monitoring state board results, adding "one facet of the curriculum review process in a college of nursing is an evaluation of the success of graduates on the State Board Examinations." At Long Beach City College, the curriculum is reviewed and revised based on current information about the NCLEX-RN in an attempt to

further prepare the graduates for practice. Members of the faculty felt that an investigation that identified student achievement indicators would be valuable in providing reliable data that could be used in counseling students regarding their pre-examination review activities for writing the state board examination.

Significance to the Institution

Long Beach City College is a two-year college that serves a large metropolitan community. The college administration, advisory committee and faculty of the registered nursing program are committed to serving the community that is made up of upper, middle and lower income families who have voiced their dissatisfaction at the rising cost of community college education. Failure on the National Council Licensure Examination for Registered Nurses represents a substantial loss of time and money to the graduate of the nursing program at Long Beach City College who is restricted from practicing as a registered nurse until the examination is successfully passed.

Identifying ways to assist the graduate to be successful on the state board examination will benefit Long Beach City College and the department of nursing by enhancing our reputation and by demonstrating our accountability. According to Felts (1986:372), "nursing

education has a twofold accountability, for it must meet the needs of students for a quality education and society's need for professionals capable of delivering nursing care to meet its health needs."

Relationship to the Seminar

The concepts of testing as a predictor for success, test results as counseling tools, and tests as tools for identifying areas of deficiencies are relevant to the seminar Learning Theory and Applications. The Comprehensive Nursing Achievement Test, found to be predictive of success on the state board examination, may prove to be a useful tool in counseling students in their preparation for the NCLEX-RN.

Review of the Literature

Felts (1986:372) found that "the predictive power of the traditional cognitive measures such as grades, college admission scores, nursing achievement tests, and college GPA is generally supported in the literature."

The results of a study of 117 students conducted by Shelley and others (1976:55) supported the view that the National League for Nursing (NLN) achievement test scores can be used to predict student performance on state board examinations and are therefore "useful in advising students in regard to pre-examination review for the State

Board Test Pool Examination." In addition, Donsky and Judge (1981) reported that individuals who were successful in nursing school had significantly higher scores on NLN nursing examinations than non-completers. Haney and others (1977) found that standardized achievement tests proved to be the best predictors of success on state board examinations for three ethnic groups.

Felts (1986) found that performance in college courses predicted success on the NCLEX-RN while age did not. Woodham and Taube (1986) demonstrated that a significant positive relationship existed between the NCLEX-RN and seven nursing courses at a midwestern Associate of Science in Nursing Degree Program. The authors also found that verbal scores on a college admission test were significant, while age at time of graduation from the program, high school class rank percentile, and math scores on a college admission test were not significant. Whitley and Chadwick (1986) concurred, in part, but concluded that the "risk of nonsuccess" on the state board examination should be minimized by raising admission standards for nursing programs.

It must be taken into consideration that the current measurement of minimum, safe nursing practice for licensure, the NCLEX-RN, was given for the first time in July of 1982. Prior to that time the State Board Test

Pool Examination (SBTPE) was the official test for licensure. The SBTPE was made up of five sub-tests representing medical, surgical, obstetric, pediatric, and psychiatric nursing. The current test, the NCLEX-RN, is an integrated examination developed within a nursing process framework. Studies both prior to and after 1982 indicated that the Comprehensive Nursing Achievement Test was useful as a predictor for success on state boards. This indicated that while the structure of the licensing examination is different, the content is essentially the same.

St. Thomas (1982), in an attempt to identify predictors of success on state board examinations, examined the grade point average (GPA) of first year nursing students at an eastern community college. The study revealed that there was a significant relationship between GPA and state board scores. On the basis of these findings, the GPA required for continuation beyond the first semester was changed at that institution to eliminate high risk students.

In discussing high risk students, Whitley and Chadwick (1986:94) stated that

> graduates who entered the nursing program with low SAT scores, low cumulative and Science GPAs, who scored below the class mean on School of Nursing Examinations and whose cumulative grade point averages drifted downward while in the School of Nursing were at significantly high risk of failing the NCLEX.

Because Long Beach City College admits students who are by this definition "high risk," it is especially important to identify means to predict success or failure and act on information that may help high risk students. "This must be accomplished while maintaining a reputation of excellence and satisfying accrediting and licensing agencies (Whitley and Chadwick, 1986:101)."

Tatham (1976) identified two criteria of success for nursing and dental hygiene students, 1) grade point average in clinical courses; and 2) scores on the nursing or Dental Hygiene Board examinations. Of these two criteria, Tatham found that the best indicator of the level of performance on the licensing examinations was performance in clinical courses. The grade point average for the subjects included in this study was also examined to determine if this was true at Long Beach City College.

Poor scores on entrance examinations may be used as the basis for denying admission of applicants to the nursing program. Haywood and Hoffman (1975) found that the use of standardized test scores as a criterion for admission was discriminatory toward applicants over forty years of age. Older applicants scored significantly lower on standardized entrance exams but were rated higher than their younger peers in performance, attitude, and attendance by their clinical instructors. It was also

found that skill in test-taking increased in the older student as they progressed in the program.

The review of the literature contained many references to achievement tests and other variables as predictors for success on the state board licensing examination for registered nurses. The literature also supported the need for continued evaluation of programs of nursing, since "the primary concern of nursing education is the implementation of knowledge in such a manner that the nursing student can become a competent, accountable, and effective professional (Woodham and Taube, 1986:113)." That competence is measured, in part, by the state board examination at the present.

Chapter 3

PROCEDURES

This investigation was undertaken to determine if the Comprehensive Nursing Achievement Test is a predictor of success on the National Council Licensure Examination for Registered Nurses (NCLEX-RN) for the graduate of the registered nursing program at Long Beach City College.

Sample Selection

The sample was selected from a population that included all of the graduates of the registered nursing program at Long Beach City College during 1986. The original intent was to include both 1985 and 1986 graduates. However, because the curriculum was modified during 1985 and because over one-fourth (twenty-nine percent) of the graduates of the class of 1985 did not give permission for their scores on the NCLEX-RN to be reported to the college, the class of 1985 was not included in the study.

The results of the NCLEX-RN were obtained for the 101 graduates of the class of 1986. Of these graduates, fourteen (fourteen percent) did not give permission for their NCLEX-RN scores to be reported to the college.

Since these scores were reported only on a pass/fail basis, these graduates were omitted from the study. The scores on the Comprehensive Nursing Achievement Test were then obtained for the each of graduates to be included in the study.

Additional data were gathered on each of the graduates to be included in the study. These data included date of birth, admission math and reading test scores, and grades for nursing classes taken during the second year of the registered nursing program. Each graduate's age at the time of the Comprehensive Nursing Achievement Test was calculated using their date of birth and the date of the test. Each student's grade point average was calculated using the grade earned for nursing courses completed during the second year of the registered nursing program (GPA-RN). Because of lack of data in one or more of these categories, sixteen additional graduates were omitted from the study. The final sample was made up of seventy-one graduates of the 1986 registered nursing class from Long Beach City College.

In summary, data for each graduate in the sample included the NCLEX-RN score, Comprehensive Nursing Achievement Test score, age at the time of the Comprehensive Test, college admission math and reading test scores, and grade point average for nursing classes taken during the second year of the nursing program.

Research Question

The research questions addressed were: Is the score on the Comprehensive Nursing Achievement Test predictive of success or failure on the National Council Licensure Examination; and, are there other factors that are predictive of success or failure on the NCLEX-RN such as age, entrance test scores, or grades on nursing courses?

Treatment of Data

The score for each subject on the Comprehensive Nursing Achievement Test was compared to that subject's score on the NCLEX-RN to determine if the Comprehensive Nursing Achievement Test is a predictor of success on the NCLEX-RN.

It was possible to do a comparative analysis on the two test scores because the score range of the Comprehensive Nursing Achievement Test is designed to correspond to scores reported on the licensure examination.

> The total test score on the Comprehensive is a standard score in units that are proportionally equivalent to scores reported for the NCLEX-RN. That is, the scale used for NCLEX-RN reports a mean score of 2000 and a "passing score" of 160; the scale used for the Comprehensive Nursing Achievement Test reports a mean score of 200 and "passing score" of 160 (NLN Test Service Catalog, 1987:10).

A standard score, a score that is a transformation of the raw score earned, expresses the distance of an individual raw score above or below the average raw score of the norms group. Where the norms group remains unchanged, standard scores are comparable from test to test, although raw scores are not. Each score on the Comprehensive Nursing Achievement Test was multiplied by ten to complete the statistical analysis.

The two-tailed independent t-test, a parametric statistical test, was used to compare the two means in order to determine the probability that the difference between the means was a real difference rather than a chance difference (Tuckman 1978). The t-test was appropriate because of the normal distribution for the variable under consideration. Interval data in the form of test scores was examined. The 0.5 level of significance was accepted because this was a "search for all promising leads and no genuine prospect must be overlooked (Isaac, 1971:143)." The liberal level of significance selected decreased the chances of a Type II error that would cause the researcher to conclude falsely that a difference did not exist in the data when in fact it did.

It was assumed that the samples being analyzed approximate a normal distribution. The Kolmogorov-Smirnov normality test was run on the NCLEX-RN scores, the

Comprehensive Test scores, age, reading and math scores, and GPA-RN of the sample to validate this assumption. In all cases the results insured that the sample being analyzed represented a normal distribution.

Using the dependent variable the NCLEX-RN, as a constant, a multiple regression was completed. The score on the Comprehensive Nursing Achievement Test, age, math and reading scores, and GPA on nursing courses were treated as the independent variables. The results are reported in the findings chapter.

Null Hypothesis

The null hypothesis tested in this study was: There is no significant difference in the score earned on the NLN Comprehensive Nursing Achievement Test and on the National Council Licensure Examination for Registered Nurses.

Basic Assumptions

Basic assumptions pertinent to the study were: 1) the sample of subjects chosen for the study was representative of the general population of students who graduate from the registered nursing program; 2) success on theory examinations is useful in evaluating success in nursing; 3) the NCLEX-RN is a reliable and valid measurement instrument and that it remains stable across

the years, and; 4) The Comprehensive Nursing Achievement Test is a reliable and valid measurement instrument.

Limitations of the Study

The factors that contribute to the limitations of the study were: 1) The sample was limited to those students who completed the curriculum of the nursing program at Long Beach City College in 1986; 2) Variables such as motivation can not be controlled, and; 3) Ex-post facto studies result in loss of some control because of the time factor.

Definition of Terms

The following terms are used in this practicum:

National League for Nursing (NLN). An independent accrediting and testing organization related to the field of nursing.

Comprehensive Nursing Achievement Test. A comprehensive nursing achievement test prepared by the National League for Nursing.

National Council Licensure Examination for Registered Nurses (NCLEX-RN). The examination required by law for a license to practice registered nursing in the state of California since July 1982.

State Board Test Pool Examination (SBTPE). Offical test for licensure as a registered nurse prior to 1982.

Long Beach City College. A California community college that offers open access to low cost, comprehensive, instructional programs in higher education that are responsive to the diverse needs of the community.

GPA-RN. The grade point average of each subject calculated on theory grades for courses taken during the second year of the registered nursing program.

Chapter 4

FINDINGS

The test scores of seventy-one graduates of the class of 1986 on the Comprehensive Nursing Achievement Test and the NCLEX-RN were compared to determine if the Comprehensive Nursing Achievement Test is a predictor for success on the state board examination. The mean score on the Comprehensive was 2136.48. The mean score on the NCLEX-RN was 2112.18. The calculated t value was 0.52. (Table 1) The null hypothesis was accepted at the .05 level of significance with 140 degrees of freedom. There is no significant difference in the test scores of the Comprehensive Nursing Achievement Test and the Test scores on the NCLEX-RN.

Table 1

A Comparison of Test Scores on the Comprehensive Nursing Achievement Test and the NCLEX-RN

Test	n	mean	SD	t value*
Comprehensive	71	2136.48	214.65	0.52
NCLEX-RN	71	2112.18	332.32	

*Critical t value = $\geq$ 1.96 or $\leq$ -1.96

The mean, range, minimum and maximum was calculated for the Comprehensive Test, age, math admission score, reading admission score and GPA-RN. The mean score for the Comprehensive Test was 214, with a range of 93, from 167 to 260. The mean age of the subjects included in the study was 30.03 with a range of 31, from 22 to 53. The mean admission reading score, reported in percentiles, was 45.73. The range was 94, with a minimum score of 1.00 and a maximum score of 95. The mean math admission score, reported in percentiles, was 30.51. The range was 96, with a minimum score of 1.00 and a maximum score of 97. The mean GPA-RN was 2.85. The range was 2.0 with a minimum GPA-RN of 2.0 and a maximum GPA-RN of 4.0 (Table 2).

Table 2

Summary of the Characteristics of the Independent Variables N=71

Variable	Mean	Range	Minimum	Maximum
Comprehensive	213.65	93.00	167.00	260.00
Age	30.03	31.00	22.00	53.00
Reading Score	45.73	94.00	1.00	95.00
Math Score	30.51	96.00	1.00	97.00
GPA-RN	2.85	2.00	2.00	4.00

A multiple regression analysis, the statistical process by which several variables are used to predict another variable, was completed. The correlation coefficient and the coefficient of determination were calculated with the NCLEX-RN being treated as the dependent variable (Y). The correlation coefficient r is a measure of the strength of the linear relationship between two variables, X and Y. The coefficient of determination r^2 is the proportion of the variation in the dependent variable (Y) attributable to the linear relationship of the dependent variable (Y) with the independent variable (X). Correlation analysis does not show cause and effect, but only the existence of a relationship (Skane, 1985).

The Comprehensive Nursing Achievement Test, with an correlation coefficient of 0.78 and a coefficient of determination of 0.60, demonstrated the strongest relationship. The GPA-RN, with an correlation coefficient of 0.72 and a coefficient of determination of 0.51, is second most with fifty-one percent. Reading admission scores, with an correlation coefficient of 0.38 and a coefficient of determination of 0.14, age with an correlation coefficient of 0.33 and a coefficient of determination of 0.11 and math admission scores with an correlation coefficient of 0.16 and a coefficient of

determination of 0.03 seem to demonstrate little relationship (Table 3).

Table 3

Multiple Regression Analysis For Predicting NCLEX-RN Scores (Y)

Independent Variable	r	r^2
Comprehensive (X^1)	0.78	0.60
Age (X^2)	0.33	0.11
Math Score (X^3)	0.16	0.03
Reading Score (X^4)	0.38	0.14
GPA-RN (X^5)	0.72	0.51

There was no significant difference in the scores on the Comprehensive Nursing Achievement Test and the National Council Licensure Examination for the 1986 graduates of the registered nursing program at Long Beach City College. Therefore the null hypothesis was accepted. The multiple regression analysis demonstrated a relationship between the Comprehensive Nursing Achievement Test and the NCLEX-RN and grades during the second year of the program and the NCLEX-RN. No relationship was demonstrated between age and the NCLEX-RN, math admission scores and the NCLEX-RN, or reading admission scores and the NCLEX-RN.

Chapter 5

DISCUSSION, IMPLICATIONS AND RECOMMENDATIONS

Discussion

This investigation was conducted to determine whether performance on the Comprehensive Nursing Achievement Test was a predictor of success on the National Council Licensure Examination for Registered Nurses (NCLEX-RN) for the graduates of the registered nursing program at Long Beach City College. Additional data including age, admission math and reading test scores, and grade point average calculated on theory grades for second year nursing courses, were examined to determine if these might also be predictors of success on state boards.

The study sample was composed of seventy-one graduates of the 1986 class of the registered nursing program at Long Beach City College for whom state board results were available. The data gathered included the Comprehensive Nursing Achievement Test score, NCLEX-RN score, age, math admission score, reading admission score and grade point average for each graduate in the study.

Using the two-tailed, independent t-test, the means of the Comprehensive Nursing Achievement Test and the

NCLEX-RN were examined. No significant difference was found in the two means at the 0.5 level of significance and the null hypothesis was accepted. The results of the study demonstrated that a high score on the Comprehensive Nursing Achievement Test was indicative of success on the NCLEX-RN with a confidence level of ninety-five percent.

A multiple regression analysis was also completed using the NCLEX-RN as the dependent variable and each graduate's score on the Comprehensive Nursing Achievement Test, age, math and reading scores, and GPA on nursing courses, as the independent variables. The results were interesting, although mixed. The Comprehensive Nursing Achievement Test, with a coefficient of determination of sixty percent demonstrated a significant relationship with the NCLEX-RN. This was consistent with the findings of Shelley, Kennamer and Raile (1976). The Comprehensive Nursing Achievement Test proved to be one of two of the variables under consideration to demonstrate a significant relationship to the NCLEX-RN.

A significant correlation was also found between theory grades on second-year nursing courses and NCLEX-RN scores (coefficient of determination fifty-one percent). Performance in second-year nursing courses predicted success on the NCLEX-RN with greater accuracy than did age, or math and reading scores. This was consistent with the findings of Yocom and Scherubel (1985) and Felts

(1986) who stated that clinical nursing theory grades are useful in predicting state board results.

Age, with a coefficient of determination of eleven percent, failed to demonstrate a relationship to NCLEX-RN scores. This finding was consistent with studies done by Felts (1986), Woodham and Taube (1986), and Haywood and Hoffman (1975). Felts (1986:376) also found that "age does not affect an individual's ability to perform." This is of particular importance because of the enrollment patterns which continue to show an increase in older students.

Math admission scores, with a coefficient of determination of three percent, failed to demonstrate a relationship to the NCLEX-RN. Woodham and Taube (1986) also found that math admission scores demonstrated little relationship to success on the state board examination. In addition, Haywood and Hoffman (1975) cautioned against the use of admission scores as a basis for rejecting the older applicant to nursing school. They argued that such action would be discriminatory toward applicants over forty years of age who do poorly on such tests but who are generally very successful in nursing.

Reading admission scores, with a coefficient of determination of fourteen percent, demonstrated a higher relationship to the NCLEX-RN than either math admission scores or age but cannot be considered to be very useful

as a predictor. Woodham and Taube (1986) pointed out that a relationship does exist between the verbal scores on a college admission test and success on the state board examination, however this finding was not demonstrated in the present investigation.

As a result of this investigation, it was concluded that confidence in the Comprehensive Nursing Achievement Test as a predictor of success on the NCLEX-RN was well founded. In addition to the Comprehensive Nursing Achievement Test, the best indicator of success on the NCLEX-RN was the student's performance in second-year nursing courses. Age, math admission scores and reading admission scores did not predict success on the NCLEX-RN.

Implications

This study has implications for the nursing faculty at Long Beach City College in that the results of the Comprehensive Nursing Achievement Test may prove to be useful in advising students regarding pre-examination review strategies for the state board examination.

The data received from the National League for Nursing explaining the results of the Comprehensive Nursing Achievement Test contain information that will be helpful in identifying students who are at risk for failure of the NCLEX-RN. These data will also be useful in counseling students in preparation for the state board

examination. In a paper presented at the annual meeting of the American Educational Research Association, Frierson (1984) confirmed that state board performance can be improved. A standardized test with individual and group analysis of results available for use should prove to be a valuable tool.

Recommendations

The following recommendations are made based upon the findings of this investigation.

1. The practice of giving the Comprehensive Nursing Achievement Test to second-year registered nursing students at Long Beach City College should be continued. The data demonstrated that success on the Comprehensive Nursing Achievement Test was indicative of success on the NCLEX-RN making the test a valuable tool in preparing the student for the NCLEX-RN.

2. The results of the Comprehensive Nursing Achievement Test should be utilized by the faculty to council students in pre-examination review strategies for the NCLEX-RN. An individual and class summary report of the scores on the Comprehensive Nursing Achievement Test are provided by the National League for Nursing. This data includes a record of each examinee's incorrect and omitted responses. These data could be used to identify

specific areas of weakness and to assist the student in planning a review in the identified areas.

3. The Comprehensive Nursing Achievement Test should be used by the faculty as a basis for curriculum review. Since the test is predictive of success on the NCLEX-RN, a systematic analysis of the test should prove to be beneficial in evaluation of the curriculum.

4. The study should be replicated with a larger sample in another setting.

The nursing program at Long Beach City College can be strengthened by addressing the needs of students who are identified as high risk for failure on the National Council Licensure Examination for Registered Nurses after taking the Comprehensive Nursing Achievement Test.

REFERENCES

Donsky, Aaron P. and Albert J. Judge Jr. "Academic and Non-academic Characteristics as Predictors of Persistence in an Associate Degree Nursing Program." Bethesda, Md.: ERIC Document Reproduction Service, ED205076, 1981.

Felts, Joan. "Performance Predictors for Nursing Courses and NCLEX-RN." Journal of Nursing Education, 25, no. 9 (1986): 372-77.

Frierson, Henry T. Jr. and others. "Interventive Effects on Nursing State Board Exam Scores for Graduates of Traditional Black College." Bethesda, Md,: ERIC Document Reproduction Service. ED247238, 1984.

Haney, Russell and others. "The Prediction of Success of Three Ethnic Samples on a State Board Certification Examination for Nurses from Performance on Academic Course Variables and on Standardized Achievement and Study Skills Measures." Educational and Psychological Measurement (Winter 1977) 37, no. 4: 949-64.

Haywood, Elsie D. and Elise Hoffman. "An Investigation into the Discrimination of Standardized Tests for Older Students." Bethesda, Md.: ERIC Document Reproduction Service, ED113007, 1975.

Krupa, Karen C. and others. "Identification of Variables Which Affect Student Performance on Examinations for Licensure as a Registered Nurse." Bethesdam Md.: ERIC Document Reproduction Service, ED250355, 1983.

Isaac, Stephen and William B. Michael. Handbook in Research and Evaluation. San Diego, California: E.D.I.T.S., 1971.

Miller, Carol and Robert Meier. "Predicting State Board Results for Associate Degree Nursing Students." Paper presented at the Convention of the National Council on Measurement in Education, April 1974. Bethesda, Md.: ERIC Document Reproduction Service, ED090268, 1974.

NLN Comprehensive Nursing Achievement Test 1985 Edition, "Student Guide for Interpretation of Performance Reports," NLN Test Service, New York, New York, 1985

National League for Nursing. 1987 NLN Test Service Catalog. Testing Products and Services. New York.

Shelley, Betty, David Kennamer and Martha Raile. "Correlation of NLN Achievement Test Scores with State Board Test Pool Examination Scores." Nursing Outlook, (January 1976) 24, no. 1: 52-5.

Skane, Donna H. Elementary Statistics. Addison-Wesley Publishing Company. Menlo Park, California. 1985.

St. Thomas, Sister. "An Analysis of the Relationship Between the First Semester Grade Point Average and the State Board Nursing Scores at Vermont College." Practicum, Nova University. Bethesda, Md.: ERIC Document Reproduction Service, ED214572, 1982.

Tatham, Elaine L. "An Examination of Academic Variables as Predictors of Success." Bethesda, Md.: ERIC Document Reproduction Service, ED121381, 1976.

Tuckman, Bruce W. Conducting Educational Research. New York, New York: Harcourt Brace Jovanovich, Inc., 1978.

Whitley, Marilyn Peddicord and Patricia L. Chadwick. "Baccalaureate Education and NCLEX: The Causes of Success." Journal of Nursing Education 25, no. 3 (March 1986): 94-101.

Woodham, Ruth and Kurt Taube. "Relationship of Nursing Program Predictors and Success on the NCLEX-RN Examination for Licensure in a Selected Associate Degree Program." Journal of Nursing Education 25, no. 3 (March 1986): 112-17.

Yocom, Carolyn J. and Janet C. Scherubel. "Selected Pre-Admission and Academic Correlates of Success on State Board Examinations." Journal of Nursing Education 26, no. 6 (1985): 244-49.